Humidity exchanger for a breathing apparatus

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A humidity exchanger for a breathing apparatus includes an outer housing having one end with an opening for the passage of inspiration and expiration air therethrough and an opposite end into which is fitted a separate inner housing. The inner housing carries a first tube bundle of fibrous tubules defining passages therethrough for the passage of either inspiration or expiration air. This passage contains spaced apart packings through which the tubules extend and spaced between the packings defines a heat exchange space around the tubules. Construction includes an inner tube or conduit centrally of the bundle with a passage of heat of the inspiration or the expiration air into the space surrounding the tubules within the inner housing. The inner housing leads into a front space of the outer housing through a conduit connected to the user of the apparatus. The space between the inner housing and the outer housing is filled with a second tubule bundle which is embedded at each end in packing so that an entrance passage is defined adjacent the rear end of the outer housing which connects with the space defined around the first bundle of tubules in the inner housing. Here again the space around the second bundle between the inner and outer housings is connected with an inlet and an outlet for circulating a conditioning fluid, for example, such as warm water for heating inspiration air in the event the inspiration air is passed through the second bundle tubules. The front end of the tubules of the second bundle communicate with an inflow space which is closed by a non-return valve which permits flow in a direction toward the

conduit front end which is to be connected to the user.